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Implications of occupational hazards on attainment of the Sustainable Development Goals in the Nigerian Construction Industry

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Abstract. The Sustainable Development Goals (SDGs) were framed to provide solutions to challenges confronting humanity. The SDGs are interconnected and will require the efforts of individuals and different sectors of the economy for attainment. One of the goals of the SDGs is to ensure good health and promote well-being for all by 2030. Sectors such as construction have high incidence of occupational hazards which affect the wellbeing of operatives in the industry. This paper reports the findings from a survey of 100 craftsmen in Lagos, Nigeria. Data obtained through the survey were evaluated by means of frequencies and charts. The study showed that majority of the craftsmen surveyed suffered one form of health challenge or the other. Occupational hazards drain the resources of workers. It also leads to absenteeism, low productivity and poor project performance. On a national scale, occupational hazards increase disease burden which is an additional cost to government spending on health care. The findings have negative implications on the attainment of goals 1 (no poverty), goal 3 (health and wellbeing) and goal 8 (decent work). Findings from the research can be used to create policies on occupational safety and compliance on construction sites.

Key words: construction industry, construction sites, craftsmen, health and safety, occupational hazards, sustainable development

1. Introduction

One of the sustainable development goals of the 2030 agenda for sustainable development is to ensure healthy lives and promote well-being for all. This ambitious goal is not only targeted at communicable and non-communicable diseases but also health issues arising from workplace hazards. This goal focuses on individuals as well as several sectors of the economy. In terms of occupational hazards, some sectors are more hazardous than others. For instance, the construction sector is believed to be one of the most hazardous industries [1,2] with about 60,000 fatalities occurring in the construction industry every year [3]. High incidence of fatalities and injuries in the construction industry makes it risky for workers. The frequent occurrence of occupational hazards adds to the negative image of the



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industry and inhibits the achievement of a decent work place. Unhealthy workplace practices and occupational injuries are major challenges in the construction industry [4]. Whilst occupational hazards are common in many countries, developing countries have a more alarming rate of workplace hazards. However, the exact number of fatalities might be difficult to ascertain because of dearth of accident records. Moreover, many developing countries have weak institutions and poor legislations to drive workplace safety [5]. Construction craftsmen include bricklayers, carpenters, iron fixers, tillers, plumbers and electricians [6] and they play a vital role in the realization of construction objectives. However, unhealthy workplace practices and occupational hazards make craftsmen one of the most vulnerable groups of workers. The construction industry is dominated by an aging workforce and older people are more susceptible to occupational hazards [7]. Some of the work on construction site requires the use of power tools while other activities are carried out within confined spaces or at very high levels. In addition, many craftsmen engage in physically demanding activities in awkward positions and on daily basis. This situation leaves many craftsmen susceptible to occupational health challenges like electrocution, injuries, respiratory disorders, dermatitis, Musco-Skeletal Disorder (MSD) and gastro-intestinal diseases [8]. Even though construction sites have been described as hazardous working environment, many of the hazards are induced by both workers and site management. [9] noted that workers induce hazards on construction sites when they are influenced by alcohol and hard drugs. Some are negligent of site safety rules because of their religious beliefs. In other instances, site management can be liable for the incidence of accidents and fatalities on site when safety awareness and training is lacking and where there is no attention for workers welfare. Moreover, non-compliance of site staff to safety rules, poor commitment of top management to site safety and negligence of workers are some other human factors affecting workplace safety [10]. Occupational hazards have devastating impact on workers, employers and the society at large [11]. Work place induced injuries and illnesses can bring about the loss of human life which is irreparable [5]. Workers productivity and performance can also be affected when fatalities occur on construction sites [12]. Moreover, a healthy workforce can reduce the cost of health care provisions by national governments. The construction sector is one of the highest employers of labour [13] and also has the highest rate of accidents. When the number of people working in the construction industry is considered then, the magnitude of the implication of occupational hazards on sustainable development can be set in proper perspective.

2. Methodology

The study used a survey research design to achieve its objectives. Whilst 100 questionnaires were shared purposively to operatives at various construction sites in Lagos, Nigeria only 35 questionnaires were returned and found appropriate for evaluation. The respondents comprised of operatives from different trades including: bricklaying, carpentry, welding, electrical works, plumbing and iron fixing. The information obtained from the survey were analysed with the use of descriptive statistics.

2.1 Craftsmen Surveyed

From Fig.1 a breakdown of the operatives surveyed can be seen. The fig shows Bricklayers (9), Carpenters (6), Painters (4), Plumbers (5), Welders (3), Electricians (3), Iron fixers (5).

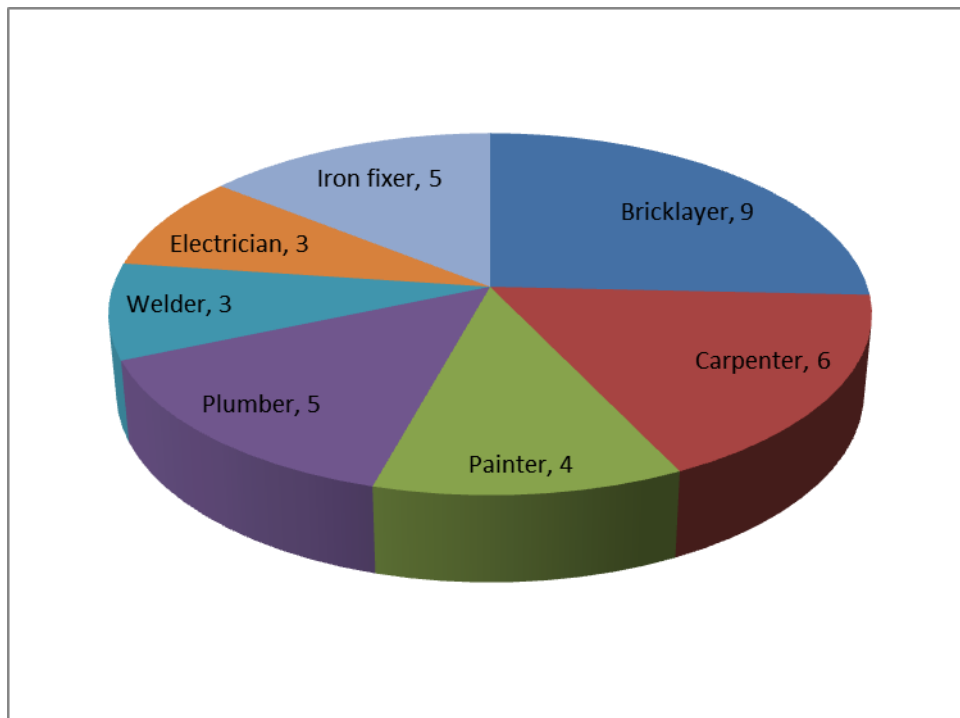


Figure 1: Craftsmen Surveyed

2.2 Age of Respondents

Fig 2 presents the age categories of the respondents in the study. From the figure, most of the bricklayers were between the ages of 41-50, majority of the carpenters were between 31 and 40 years, the painters fell within the age bracket of 31 and 50 years, Plumbers had greater representation within the age category 31-40 years, welders were between 31-50 years, most of the electricians were between 41-50 years while iron fixers were between 31 and 40 years of age. Out of the thirty-five craftsmen surveyed twelve (36%) were between 41-50 years of age and two other craftsmen (a bricklayer and a carpenter) were above 50 years of age. This is a relatively old age bracket which is more susceptible to occupational hazards. [7] also noted that the construction industry is dominated by an aging workforce.

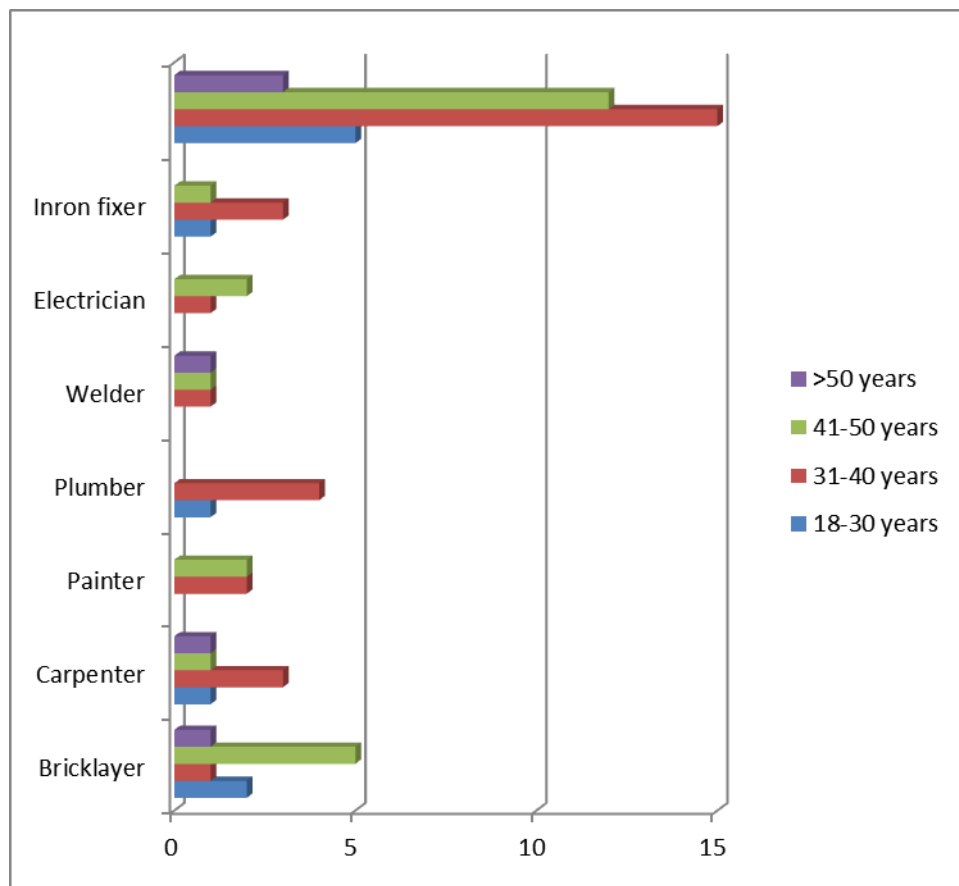


Figure 2: Age of Respondents

2.3 Heart challenges

Fig 3 shows the heart challenges experienced by some of the respondents in the study. Out of the 35 respondents, 17 (50%) claim to experience some heart challenges. Nine out of the 17 respondents complain of frequent tightness and pain in their chest, 6 of them experience the pain and tightness during physical activity alone while 2 of the craftsmen complain that the tightness and pain they feel in their chest interferes with their job. From fig 3, 48.57 % of the craftsmen surveyed have some form of heart challenge. This reveals an unhealthy workforce; a situation that has serious implication for the wellbeing of craftsmen and overall success of construction projects.

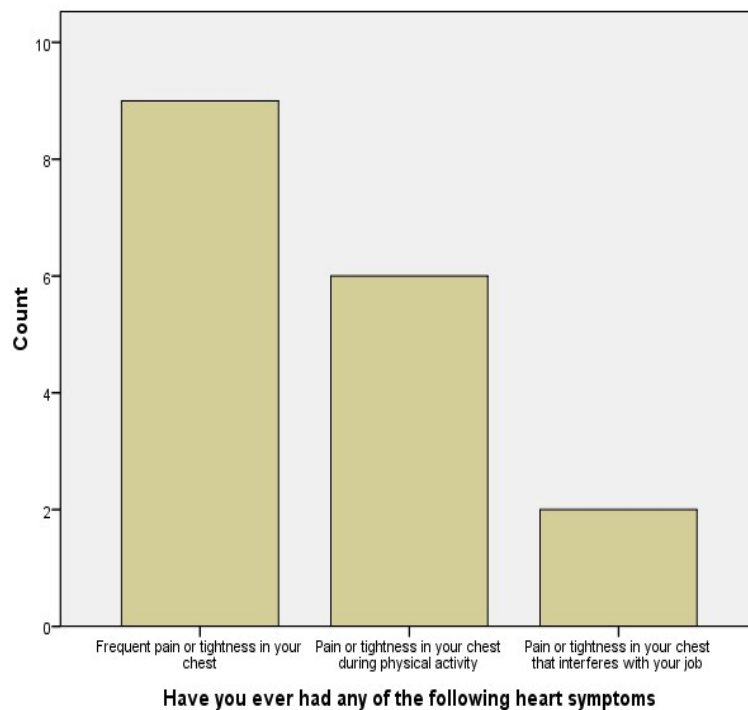


Figure 3: Heart Challenges

2.4 Musco-skeletal Challenges

Fig 4 indicates musco-skeletal issues among the craftsmen surveyed. From the figure, bricklayers experience more of weakness in their arms, hands, legs and frequent back pains. Carpenters complain more of weakness in the arms, hands and legs. Painters experience more of weakness in their arms, back pain and waist pain. Plumbers complain more of difficulty when squatting and excessive back pain. Welders experience pain in their arms. Electricians experience pain in their waist while steel fixers complain of weakness in the arms.

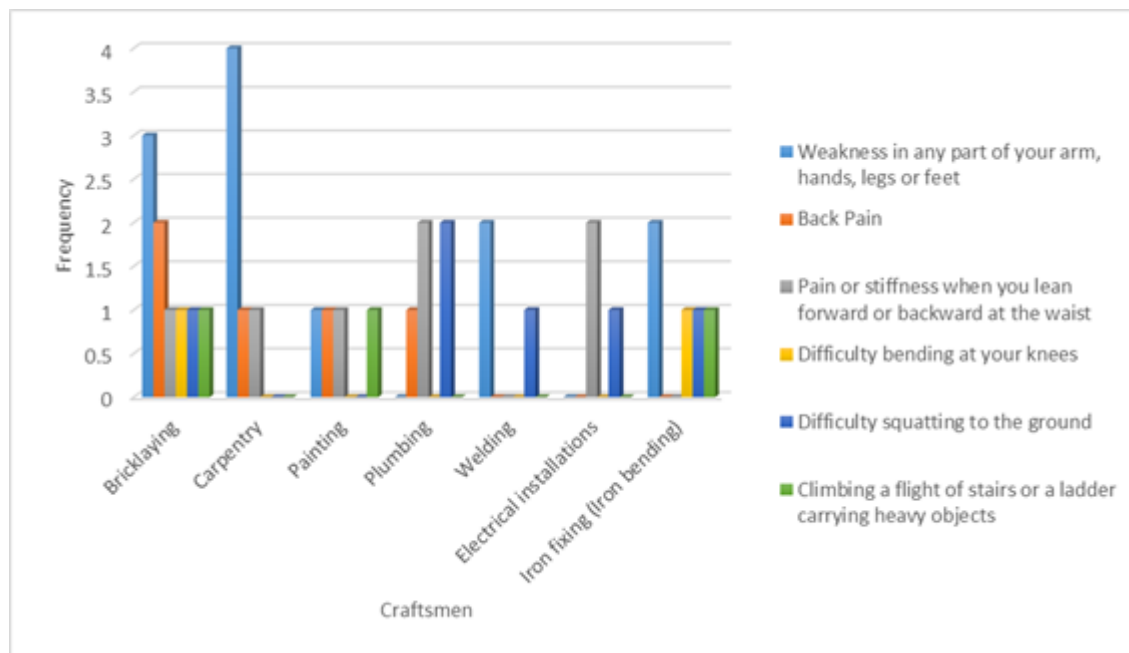


Figure 4: Musco-skeletal challenges

3. Implications

From the analysis above, it is clear that many of the craftsmen surveyed were unhealthy. This result has negative implications on workers, construction projects and the economy at large. One of the major effects of occupational hazards is that it breeds unhealthy workforce. Ill health affects workers' wellbeing and may also reduce life expectancy of construction workers. Workplace hazards drain workers' income particularly when the workers are not under any form of health insurance scheme. High incidence of occupational hazard also leads to increased cases of absenteeism which affects productivity. Poor productivity can affect project performance which leads to client dissatisfaction. The hazardous nature of the construction sector further contributes to the poor image of the industry and inhibits the attainment of a decent work place. On a national scale, high incidence of occupational hazard is an additional burden to national governments because it increases the cost of health care provisions. SDG 1 (No poverty) will be affected because unhealthy workers will have to spend part of their income to seek medical care. In a case where their condition is critical, they are likely to spend a lot of their personal income on their health and this will drain their financial resources. With little or no resources, the workers will find it difficult to meet other basic needs, causing them to experience poverty. SDG 3 (health and wellbeing) will also be affected. High incidence of fatalities and injuries in the construction sector will increase the number of unhealthy persons; thereby slowing down the attainment of goal 3 of the SDGs. SDG 8 (decent work) will also be affected because the hazardous nature of the industry is a major cause of frequent hazards recorded therein.

4. Conclusion

Occupational hazards on construction sites were assessed. Most of the craftsmen surveyed were between the ages of 41-50, which makes them more prone to workplace hazards. Many of the respondents experienced musco skeletal disorder in form of weakness in the arms, stiffness around the waist and back pain. All the craftsmen surveyed experience one form of cardiovascular challenge or the other. The findings from this study have implications for the attainment of the SDGs particularly goals 1, 3 and 8. The study recommends frequent occupational safety trainings and unscheduled site

visit by regulatory bodies to ensure that construction sites comply with safety regulations. Stakeholders should also become intentional about reducing occupational hazards so that the image of the industry can be improved from one that is risky and hazardous to a sector that is decent and safe for its workers, thereby facilitating the attainment of the SDGs.

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References

- [1] Tunji-Olayeni P F Afolabi A O and Okpalamoka O I 2018 Survey data set on occupational hazards on construction sites *Data in Brief* **18** 1365-1371
- [2] Ibem E O Anosike M N Azuh D E and Mosaku T O 2011 Work stress among professionals in the building construction industry in Nigeria. *Australian Journal of Construction Economics and Building* **11**(3) 45-57
- [3] ILO 2011. *Occupational safety and health management in the construction sector*. Retrieved from http://social.protection.ilo.org/en/courses/Open_courses/A904155
- [4] Afolabi A and Oyeyipo O 2017 The perception of future decision makers on the building Profession *Malaysian Construction Research Journal* **21**(1) 55-73
- [5] Agwu M O and Olele H E 2014 Fatalities in the Nigerian construction industry: A case of poor safety culture. *British Journal of Economics, Management and Trade* **4**(3) 431-452
- [6] Odediran S J and Babalola O 2013 Employment structure of informal construction workers/artisans in Nigeria. *Global Journal of Management and Business Research Administration and Management* **13**(11) 1-17
- [7] Tunji-Olayeni P F Omuh O I Amusan L M Ojelabi R A and Afolabi A O 2017 Attracting and retaining female students in construction related programmes. *The Turkish Online Journal of Educational Technology, Special Issue for INTE 2017* 425-430
- [8] Kulkarni G K 2007 Construction industry: More needs to be done. *Indian Journal of Occupational and Environmental Medicine* **11**(1-2)
- [9] Ogundipe K E Ogunbayo B F Ajao A M Ogundipe U and Tunji-Olayeni P F 2018 Survey datasets on categories of factors militating against safety practices on construction sites *Data in brief* **19** 2071-2078
- [10] Afolabi A O Tunji-Olayeni P F Amusan L M Omuh I O and Ojelabi R and Oyeyipo O 2016 Safety Cultured Industry Through The Integration Of Occupational Health And Safety (OHS) Courses In The Built Environment Curriculum. In: *INTED2016 Conference*, 7th-9th March 2016, INTED2016 Conference
- [11] Moradinazar M Kurd N Farhadi R Amee V Najafi F 2013 Epidemiology of Work- Related Injuries Among Construction Workers of Ilam (Western Iran) During 2006 – 2009 *Iran Red Crescent Medical Journal*, **15**(10).
- [12] Udo U E Usip E E and Asuquo C F 2016 Effect of lack of adequate attention to safety measures on construction sites in Akwa Ibom State, Nigeria. *Journal of Earth Sciences and Geotechnical Engineering*, **6**(1) 113-121
- [13] Afolabi A O Emeghe I Oyeyipo O and Ojelabi R 2016 Professionals' preference for migrant craftsmen in Lagos state *Mediterranean Journal of Social Sciences* **7**(1) 500-508